Atharva Prabhu
DISA 43

Assignment 1

04/03

Q.1) Use S3 bucket and host Video Streaming.

Ans 1) Create an S3 bucket (name: my-video)

2) Open the created S3 bucket

3) Click the upload button and upload the video file you want to stream.

4) Go to Permissions tab for each file.

5) Under Access control list (ACL) set the video files to be publicly accessible.

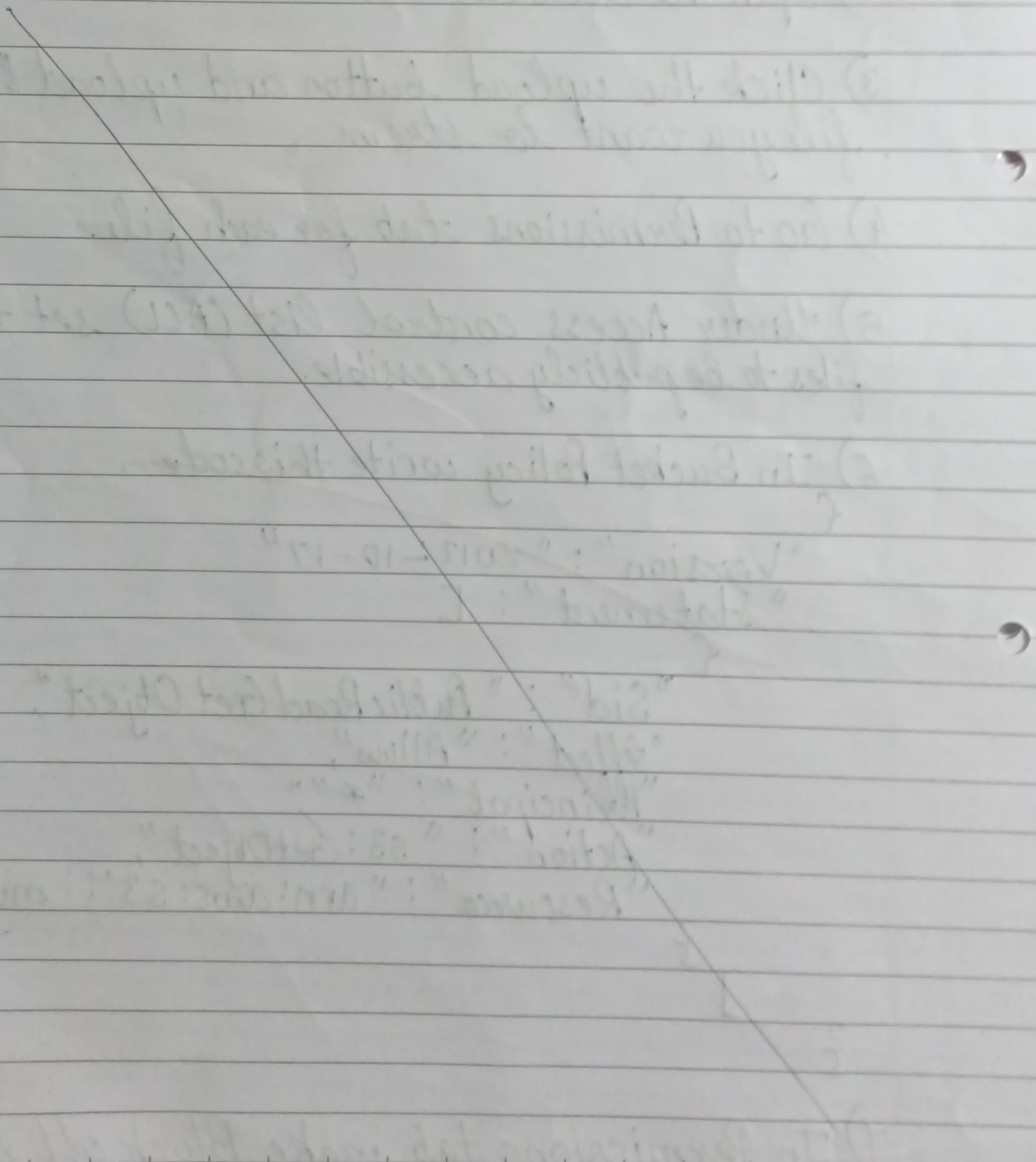
6) In Bucket Policy write this code

```
{
  "Version": "2012-10-17"
  "Statement": [
      {
          "Sid": "Public Read Get Object",
          "Effect": "Allow",
          "Principal": "*"
          "Action": "s3:GetObject",
          "Resource": "arn:aws:s3:::my-video"
      }
  ]
}
```

7) In Permissions tab make Block off public

access as eff.

8) In Properties tab
Under S3 URI the video link will be generated



Q:2) Discuss BMW and Hot Star case studies using AWS.

Ans BMW Group migrate its on premise data lake to the cloud using Amazon Web Services (AWS) in order to scale it's global demand.

Case Study:

In 2015 the BMW Group created a centralized, on-premises data lake that collects and combines anonymized data from sensors in vehicles, operational systems, and data warehouses to derive historicdl, real-time and predictive insights. Data wasn't easily ~~as~~ accessible due to which BMW's own IT Infrastructure slowed down.

In response to this challenges, the BMW group migrated it's on-premise data lake to AWS cloud. The company's Cloud Data Hub (CDH) processes and combines anonymized data from vehicle sensors and other sources. This made easy for internal teams to create customer-facing and internal application.

AWS Services used by BMW - 1) Amazon SageMaker
2) AWS AppSync
3) AWS Glue

BMW leverages AWS serverless capabilities for delivering ETL functions on big data in a modularized, accessible and repeatable fashion and provides

insights. The AWS services used in ~~BMW~~ BMW Group's AWS architecture are AWS Glue, Amazon Athena, Amazon Sagemaker.

Hotstar Case Study:

Hotstar is a popular India streaming service that has seen rapid growth in recent years. As the company's user base grew, they faced challenges in scaling their infrastructure to meet the increasing demand.

Hotstar move their entire infrastructure to AWS, which allowed them to leverage scalability and flexibility of AWS.

One of the significant challenges, that Hotstar faced was handling sudden-spikes in traffic during popular sporting events. By using AWS auto-scaling features, they were able to easily scale up their infrastructure to handle the increased traffic and then scale it back down when demand return to normal levels.

Hotstar also implemented other AWS services, such as Amazon CloudFront, Amazon S3, and Amazon RDS, to improve their content delivery and database management. By leveraging AWS, Hotstar was able to reduce thier infrastructure costs and increase their application performance and reliability.

Q.3) Why Kubernetes and advantages and disadvantages of Kubernetes. Explain How Adidas uses Kubernetes.

Ans Kubernetes is an open-source container orchestration system for managing, scaling and automating software deployment. Through Kubernetes, developers can view, access, deploy, update and optimize container ecosystems.

Why Kubernetes? → No downtime for deployment
→ Scalability
→ Infrastructure and configuration as code
→ Cross functional collaberation.

Advantages

- Scalability - Continuously monitoring resource usage and application workload requirements. Container Orchestration - Automates the deployment, scaling and management of containers. Manages the lifecycle of containerized applications.

Disadvantages

- Security Challenges: Particularly around container isolation and network security.
- Significant Resource Requirements in terms of hardware and human resources.

Case Study :

In recent years, the adidas was having a problem with accessing all of the tools.

Solution : They found a solution with containerization, agile development, continuous delivery, and a cloud native platform that includes Kubernetes and Prometheus.

Impact : After Six months, 100% of the Adidas website was running on Kubernetes. Load time was reduced by half. Releases went from 3-4 weeks to 3-4 times a day.

Q.4) What are Nagios and explain how Nagios are used in E-services?

Ans Nagios is an open-source software for continuous monitoring of systems, networks, and infrastructures. It runs plugins stored on a server that is connected with a host or another sever on your network or the Internet. In case of any failure, Nagios alerts about the issues.

- ~~Nagios tracks~~

~~Nagios is a client-server architecture~~

Nagios software runs periodic checks on critical parameters of application, network and server resources. For example, Nagios can

monitor memory use, disk use and micro-processor load, as well as the number of currently running processes and log files. Nagios can also monitor such as Simple Mail Transfer Protocol (SMTP), Post Office Protocol 3, Hyper Text Transfer Protocol (HTTP) and other common network protocols. Nagios initiates active checks, while passive checks come from external applications connected to the monitoring tool.